

Developing Basic Oracle SQL*Plus Queries
RCRAInfo Reporting: Skill Sharing Workshop
November 16 & 17, 2000

1. References

Oracle 8, The Complete Reference, by George Koch and Kevin Loney
Various Web sites

2. Definitions

- S SQL: Structured Query Language: Standard language for interacting with Relational Databases
- S SQL*Plus: Oracle tool that recognizes and submits SQL commands

3. How do you enter commands in SQL*Plus

- S Typing from the keyboard
- S Cut and paste (ctrl+c, ctrl+v) from/to the Windows clipboard
- S Using the @ symbol to include a prewritten file
- S Use the edit command to manipulate the current SQL query

4. List of useful SQL*Plus commands

- S Spool filename: Records your session in a file
- S Spool off: Closes the spool file
- S List tables that you can see: select table_name from all_tables order by table_name
- S Describe the contents of a table: desc tablename

5. Basic structure of a Select statement

- S Select (column1, column2)
- S From (table1 1, table2 2)
- S Where (condition 1, condition 2)
- S Group by (column 1, column 2)
- S Order by (column 1, column 2);

6. Important SQL operators

- S Distinct
- S Count
- S Sum
- S Substr
- S Max
- S Min

7. Joins: How to report from two or more tables

- S Inner Joins: records exist in both tables
- S Outer Joins: one side of the join contains records not on the other side of the join

8. Some simple SQL commandments

- S Different queries can return the same result. Experiment for best performance.
- S Only ask for what you need.
- S Know the characteristics (size, number of records) of your tables.
- S Use table aliases in your query.
- S Style is important. If it is readable, it will be reuseable.

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Statement of task: Develop a generalized report showing CM&E evaluation data for use in personnel/programmatic reviews

1. What tables can I see?

```
select table_name
from all_tables
order by table_name;
```

```
TABLE_NAME
-----
AAREA
ACA_AUTHORITY
AEVENT
ALN_AREA_EVENT
ALN_EVENT_AUTHORITY
```

2. What is in each table?

```
desc cevaluation;
desc cln_evaluation_violation;
desc cviolation;
```

Name	Null?	Type
ACTIVITY_LOCATION	NOT NULL	CHAR(2)
EVALUATION_SEQ	NOT NULL	VARCHAR2(3)
EVALUATION_DATE	NOT NULL	DATE
AGENCY	NOT NULL	CHAR(1)

3. How much data is present?

```
select count(*)
from cevaluation
```

```
select activity_location, agency, count(*)
from cevaluation
where evaluation_date > '01-Jan-2000'
group by activity_location, agency
order by activity_location, agency
```

```
AC A  COUNT(*)
-- -  -----
AK E      54
AL E       7
AL S     616
AL X      25
AR E       3
AR S      62
```

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4. What evaluations have associated violations?

```
select e.ACTIVITY_LOCATION, e.EVALUATION_SEQ, e.EVALUATION_DATE,
       e.AGENCY, e.FK_LU_EVALUATIOEVALUATION_TYPE,
       1.FK_CVIOLATIONACTIVITY_LOCATION, 1.FK_CVIOLATIONVIOLATION_SEQ,
       1.FK_CVIOLATIONDETERMINED_BY_AGE
from cevaluation e, cln_evaluation_violation l
where e.FK_HBASICHANDLER_ID='ALD000622464'
and e.evaluation_date > '01-Jan-1999'
and e.FK_HBASICHANDLER_ID = 1.FK_CEVALUATIONFK_HBASICHANDLER
and e.ACTIVITY_LOCATION = 1.FK_CEVALUATIONACTIVITY_LOCATIO
and e.EVALUATION_SEQ = 1.FK_CEVALUATIONEVALUATION_SEQ
and e.EVALUATION_DATE = 1.FK_CEVALUATIONEVALUATION_DATE
and e.AGENCY = 1.FK_CEVALUATIONAGENCY;
```

AC	EVA	EVALUATIO	A	FK_	FK	FK_C	F
--	---	-----	-	---	---	-----	-
AL	001	13-SEP-00	S	CEI	AL	0154	S
AL	SFQ	13-JAN-99	S	NRR	AL	0129	S
AL	SFQ	29-JAN-99	S	NRR	AL	0128	S
AL	SFQ	25-MAR-99	S	CEI	AL	0134	S
AL	SFQ	25-MAR-99	S	CEI	AL	0133	S
AL	SFQ	25-MAR-99	S	CEI	AL	0132	S

5. What about evaluation with no violations?

```
select e.ACTIVITY_LOCATION, e.EVALUATION_SEQ, e.EVALUATION_DATE,
       e.AGENCY, e.FK_LU_EVALUATIOEVALUATION_TYPE,
       1.FK_CVIOLATIONACTIVITY_LOCATION, 1.FK_CVIOLATIONVIOLATION_SEQ,
       1.FK_CVIOLATIONDETERMINED_BY_AGE
from cevaluation e, cln_evaluation_violation l
where e.FK_HBASICHANDLER_ID='ALD000622464'
and e.evaluation_date > '01-Jan-1999'
and e.FK_HBASICHANDLER_ID = 1.FK_CEVALUATIONFK_HBASICHANDLER (+)
and e.ACTIVITY_LOCATION = 1.FK_CEVALUATIONACTIVITY_LOCATIO (+)
and e.EVALUATION_SEQ = 1.FK_CEVALUATIONEVALUATION_SEQ (+)
and e.EVALUATION_DATE = 1.FK_CEVALUATIONEVALUATION_DATE (+)
and e.AGENCY = 1.FK_CEVALUATIONAGENCY (+);
```

AC	EVA	EVALUATIO	A	FK_	FK	FK_C	F
--	---	-----	-	---	---	-----	-
AL	001	30-AUG-00	S	CEI			
AL	001	13-SEP-00	S	CEI	AL	0154	S
AL	001	12-OCT-00	S	NRR			
AL	SFQ	05-JAN-99	S	NRR			
AL	SFQ	13-JAN-99	S	NRR	AL	0129	S

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Note: alternative method for this query

```
select e.ACTIVITY_LOCATION, e.EVALUATION_SEQ, e.EVALUATION_DATE,
       e.AGENCY, e.FK_LU_EVALUATIOEVALUATION_TYPE
from cevaluation e
where e.FK_HBASICHANDLER_ID='ALD000622464'
and e.evaluation_date > '01-Jan-1999'
and not exists (
  select *
  from cln_evaluation_violation l
  where e.FK_HBASICHANDLER_ID = l.FK_CEVALUATIONFK_HBASICHANDLER
  and e.ACTIVITY_LOCATION = l.FK_CEVALUATIONACTIVITY_LOCATIO
  and e.EVALUATION_SEQ = l.FK_CEVALUATIONEVALUATION_SEQ
  and e.EVALUATION_DATE = l.FK_CEVALUATIONEVALUATION_DATE
  and e.AGENCY = l.FK_CEVALUATIONAGENCY
);
```

```
AC EVA EVALUATIO A FK_
-- --- -
AL 001 30-AUG-00 S CEI
AL 001 12-OCT-00 S NRR
AL SFQ 05-JAN-99 S NRR
AL SFQ 14-JAN-99 S NRR
```

6. What about violation data?

```
select e.ACTIVITY_LOCATION, e.EVALUATION_SEQ, e.EVALUATION_DATE,
       e.AGENCY, e.FK_LU_EVALUATIOEVALUATION_TYPE,
       l.FK_CVIOLATIONACTIVITY_LOCATION, l.FK_CVIOLATIONVIOLATION_SEQ,
       l.FK_CVIOLATIONDETERMINED_BY_AGE,
       v.ACTUAL_RTC_DATE, v.RESPONSIBLE_AGENCY
from cevaluation e, cln_evaluation_violation l, cviolation v
where e.FK_HBASICHANDLER_ID='ALD000622464'
and e.evaluation_date > '01-Jan-1999'
and e.FK_HBASICHANDLER_ID = l.FK_CEVALUATIONFK_HBASICHANDLER (+)
and e.ACTIVITY_LOCATION = l.FK_CEVALUATIONACTIVITY_LOCATIO (+)
and e.EVALUATION_SEQ = l.FK_CEVALUATIONEVALUATION_SEQ (+)
and e.EVALUATION_DATE = l.FK_CEVALUATIONEVALUATION_DATE (+)
and e.AGENCY = l.FK_CEVALUATIONAGENCY (+)
and l.FK_CVIOLATIONFK_HBASICHANDLER = v.FK_HBASICHANDLER_ID (+)
and l.FK_CVIOLATIONACTIVITY_LOCATION = v.ACTIVITY_LOCATION (+)
and l.FK_CVIOLATIONVIOLATION_SEQ = v.VIOLATION_SEQ (+)
and l.FK_CVIOLATIONDETERMINED_BY_AGE = v.DETERMINED_BY_AGENCY (+)
;
```

```
AC EVA EVALUATIO A FK_ FK FK_C F ACTUAL_RT R
-- --- -
AL 001 30-AUG-00 S CEI
AL 001 13-SEP-00 S CEI AL 0154 S 30-OCT-00 S
AL 001 12-OCT-00 S NRR
AL SFQ 05-JAN-99 S NRR
AL SFQ 13-JAN-99 S NRR AL 0129 S 31-AUG-99 S
```